

Original Article

Improving general motricity by diversifying the means of gymnastics used in primary school pupils

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Abstract

Problem Statement: The activity of teaching-learning-evaluation in primary school plays an important role by its favorable influence on body development and strengthening and as didactic tool helping to know better the children and to enable their faster adaptation to the new requirements of the instructive-educational process. Also, this activity leads to the assimilation of knowledge basic elements and to the creation of a dynamic working environment with good understanding and helpfulness.

Purpose: this paper aims primarily at the diversified use of gymnastics means content for improving the general skills in pupils aged 6-8 years.

Methods: The research was carried out throughout two school years and was conducted in two stages: initial testing period (from November 2015 to March 2016) and final testing (from November 2016 to March 2017) with a group of 26 pupils (14 girls and 12 boys), aged 6 to 8 years within ”Grigore Moisil” Theoretical School of Timisoara. The following methods were used in this research: study of specialized literature, pedagogical observation, ascertaining and formative pedagogical experiment, method of tests and control events, statistical-mathematical method of results processing and graphical representation. A number of 7 test events selected from the National School System of Evaluation in Physical Education and Sport were used to evaluate the general motor skills.

Results: The results of the study highlight the general motor skills development in pupils of 6-8 years old, both girls and boys, in terms of dynamics of abdominal, back and arms strength, vertebral column mobility and the sense of balance and general coordination.

Discussion, The comparative analysis of general motor development dynamics of the pupils of 6-8 years old reveals the increase of the abdominal and back strength higher in boys, better sense of balance and mobility in girls, higher arms strength in boys, better general coordination in girls, better endurance in boys and significant differences between tests at p 0.05, p 0.01 and p 0.001 better in girls which confirms the influence of gymnastics means on the development of general motor skills in the pupils of 6-8 years old.

Conclusions, The diversified use of gymnastics content during the classes with pupils aged 6-8 years contributed to the increase of the efficiency of physical education lesson, materialized in the final results obtained in the test events.

Key words: *physical education, evaluation, gymnastics, primary school, curriculum.*

Introduction

Currently, the education system in Romania undergoes an extensive restructuring program, consistent with the requirements of the educational and professional training system of the European Community. Hence the physical education too must reconsider its role, content, didactical methodology and system of evaluation of the pupils (Dragomir & Scarlat, 2004).

The Curriculum of Physical Education and Sport is the official document that mainly presents the content of the instructive process in different sub-systems of Physical Education and Sport. This document must fulfill certain conditions which are also the main characteristics (Cârstea, 2000, p. 74): binding, dynamic, linear and concentric character; it has a unitary, multilateral and continuous ascendant base; it provides formative priority of the training, differentiated approach etc.

The Curriculum of Physical Education and Sport is created according to a new model of curricular design, centered on competencies and meant to contribute to the development of the primary school pupil's profile. From the perspective of the discipline of study, the orientation of the didactical approach starts from competencies with their learning purpose as well as the active dimension in the creation of pupil's personality. The structure of the Curriculum includes the following elements (OMEN, 2013): briefing note, general skills, specific skills, examples of learning activities, methodological suggestions and content.

The framework goals set in the Physical Education curricula derive from the specific targets of the primary education and from the objectives of the two associated curricular cycles, namely the *cycle of*

fundamental acquisitions during the preparatory grade, 1st grade and 2nd grade and the *cycle of development* – the 3rd and 4th grade. The didactic design reflects how the primary school teacher or the Physical Education teacher conceives the achievement of the reference objectives for each grade. Depending on the educational cycle, some categories of contents stipulated by the curricula can be set up in learning units, such as "the organizational capacity", "physical development" and some basic utilitarian-applicative skills (Dragomir & Scarlat, 2004; Potop & Marinescu, 2014).

The National School System of Evaluation in Physical Education and Sport is a component part of the reform which has as main objective to determine the effects resulting from the implementation of the new curricula. The National System aims at assessing the main skills and competences required by the curricular area of physical education and sport. Depending on the time schedules adopted, the system is also supplemented with the evaluation of other competences and skills provided in the curricula (***, 1999).

Evaluation is a component of the didactic approach enabling the teacher to objectively determine the effects of the initiated didactic process on the pupils during each learning unit and at the end of this one (Urichianu Toma, Timnea, & Cheran, 2010). In teaching practice there are three types of evaluation (Dragomir & Scarlat, E., 2004; Grimaschi & Boian, 2011; Potop & Marinescu, 2014): predictive evaluation (initial), formative evaluation (continuous) and summative evaluation (final).

In the activity system, the lesson is the basic form of organizing the instructive-educational process. In school, gymnastics can also be practiced in other forms besides the lesson (Rusu, et al., 1999): setting up gymnastics, gymnastics during organized breaks, one minute of gymnastics during the class, individual gymnastics performed at home, gymnastics training sessions in sports circles.

The physical education lesson (with gymnastics elements) will take into account the age, gender and level of physical training of the group (grade). The following requirements will be observed in the implementation of the gymnastics methods included in a lesson (Potop & Marinescu, 2014): selection of exercises, alternation of muscle groups, repetition and variation of exercises, location and gradation of effort, multilateral training and correct execution of movements.

The analysis of the specialized literature studied with reference to school acrobatic gymnastics proves that the optimal and effective acquisition of the core technical elements of the curriculum involves the knowledge and development of the psychomotor skills needed to learn the dynamic and static acrobatic elements (Paşcan, 2003; Pehkonen, 2010).

The main purpose of the study is the diversified use of gymnastics means content for improving the general skills in pupils aged 6-8 years.

Hypothesis of the research: we believe that the diversified use of gymnastics content in the lessons with pupils of 6-8 years old will help to increase the effectiveness of the physical education lesson, which is reflected in the final results obtained in some test events.

Methods

The research was made along two school years and was conducted in two stages: initial testing period (from November 2015 to March 2016) and final testing (from November 2016 to March 2017) with a group of 26 pupils (14 girls and 12 boys), aged 6 to 8 years in "Grigore Moisil" Theoretical School of Timisoara. The lessons used learning contents from the following fields: organizational elements of motor activity; elements of harmonious physical development; motor qualities; basic and utilitarian-applicative motor skills; locomotion, handling and stability skills; individual hygiene and protection; motor skills specific to sport disciplines; development of personality traits (Kamaev, Proskurov, Potop, et al, 2017; Nosko, Razumeyko & Iermakov, et al, 2016;).

The following methods were used in the research: study of specialized literature, pedagogical observation, ascertaining and formative pedagogical experiment, method of tests and control events, statistical-mathematical method of results processing and graphical representation. A number of 7 test events selected from the National School System of Evaluation in Physical Education and Sport were used to evaluate the skills. The tests refer to:

- Test 1 – evaluation of abdominal strength, from supine position, torso raises with arms up in 30 sec, evaluation of correct executions number;
- Test 2 – evaluation of back strength, from sitting down position supported by arms backwards – raise of basin in supine position (backwards) horizontally in 30 sec., evaluation of correct executions number.
- Test 3, Flamingo – evaluation of the balance by number of correct attempts in 30 sec.
- Test 4 – evaluation of mobility by trunk bending forwards from sitting position, evaluated in cm.
- Test 5 – evaluation of arms strength, pull-ups from hanging position on a frame (or a gym bench put on two gymnastics boxes), number of reps.
- Test 6, Matorin– evaluation of general coordination, jump with 360° turn to the right and to the left, in degrees.
- Test 7 –hopsotch, evaluation of endurance in seconds, penalties for stepping on the line – 2 sec.

Results

Table 1 and figure 1 show the results of general motor skill development in the girls aged 6 to 8 years, regarding the dynamics of the abdominal, back, arms strength, the sense of balance and general coordination and the mobility of the vertebral column.

Table 1. Results of motor training in the girls of the preparatory class (n=14)

Statist Ind.	Test 1 (Reps no)		Test 2 (Reps no)		Test 3 (Attempts no)		Test 4 (cm)		Test 5 (Reps no)		Test 6 (degrees)				Test 7 (sec)	
	IT	FT	IT	FT	IT	FT	IT	FT	IT	FT	Right		Left		IT	FT
Mean	6.5	14.4	10.7	17.1	2.7	1.14	31.4	32.6	3.8	6.7	200.7	227.8	186.4	210.7	32.7	30.4
SD	3.23	3.81	3.17	3.33	1.89	0.36	7.21	7.67	3.19	4.08	58.4	53.2	59.6	54.8	16.8	16.6
Cv%	49.7	26.6	29.6	19.6	69.9	13.2	22.9	23.6	84.3	60.8	29.1	23.4	31.9	26.0	51.4	54.8
t	6.185		8.283		3.376		5.667		6.684		3.646		3.631		5.213	
P	0.001		0.001		0.01		0.001		0.001		0.01		0.01		0.01	

Note: IT – initial test, FT – final test

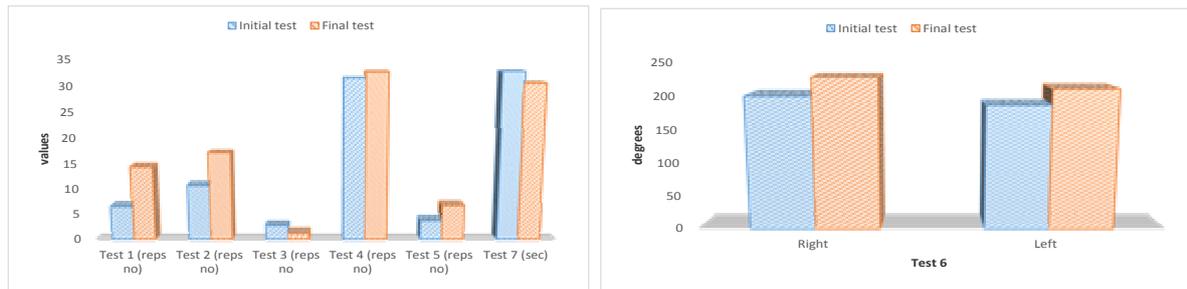


Fig. 1. Dynamics of general motor skill development in girls aged 6-8 years

Table 2 and figure 2 present the results of general motor skill development in the boys aged 6-8 years in terms of dynamics of the abdominal, back, arms strength, the sense of balance and general coordination and the mobility of the vertebral column.

Table 2. Results of motor training in the boys of the preparatory class (n=12)

Statist Ind.	Test 1 (Reps no)		Test 2 (Reps no)		Test 3 (Reps no)		Test 4 (cm)		Test 5 (Reps no)		Test 6 (degrees)				Test 7 (sec)	
	IT	FT	IT	FT	IT	FT	IT	FT	IT	FT	Right		Left		IT	FT
Mean	5.17	14.8	7.83	14.5	1.83	1.00	34.08	34.92	4.92	8.5	196.7	213.3	204.2	215.8	27.5	23.75
SD	2.69	2.79	3.56	3.61	1.03	0.0	6.05	6.08	2.78	2.64	63.6	58.7	65.3	64.2	9.95	6.35
Cv%	52.1	18.8	45.5	24.8	56.2	0.00	17.8	17.4	56.5	31.3	32.3	27.5	31.9	29.7	36.2	26.7
t	11.929		6.199		2.803		3.079		4.694		3.162		3.022		2.302	
P	0.001		0.001		0.05		0.05		0.001		0.01		0.05		0.05	

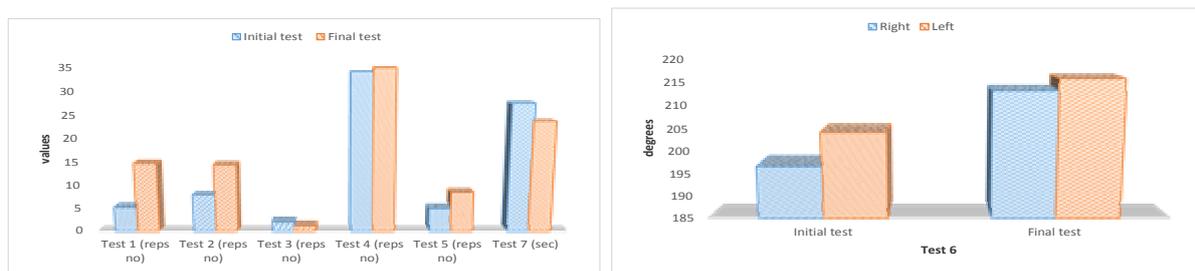


Fig. 2. Dynamics of general motor skill development in boys aged 6-8 years

Discussions

The use of the didactic technology in the acrobatic exercises learning in primary school involves the reduction of the component elements structure in accordance with the learning stages. The elaboration of the algorithmic diagram of the linear programming of the instructional material for learning the tucked forward roll-over, considered as an isolated acrobatic element, allows its efficient use for learning also other acrobatic exercises included in the curriculum (Culjak, Miletic, Kalinski, & Kezic, et al, 2014; Ivashchenko, Iermakov, Khudolii, et al, 2017; Potop & Urichianu, 2016; Potop, Ionescu, Ulăreanu, et al 2016; Potop & Jurat, 2017; Potop, Urichianu & Jurat, 2017).

The didactic strategies related to the development of the teaching activity and the evaluation elements at the level of preparatory, 1st and 2nd grades are stipulated in the O.M.E.N. no. 3418/ 19.03.2013 on the

progressive construction of knowledge, the flexibility of approaches and the differentiated way, coherence and inter- and transdisciplinary approaches.

Regarding the System of Evaluation in Physical Education and Sport currently in force, it requires revisions consistent with the new regulations (Dragomir & Scarlat, 2004; O.M.E.N. nr. 3418/ 19.03.2013; O.M.E.N. nr. 5003/ 02.12.2014): framework objectives, general skills, reference objectives and specific skills provided in the revised or newly elaborated programs approved by M.E.C.; provisions of the curricula revised and approved by M.E.C.; pupils' evaluation; integration of annual averages obtained by the pupils.

In order to develop the key skills and to ensure the transferability at educational activity level, the didactic strategies used for teaching the Physical Education will focus on coherence and integrated approaches. According to the provisions of OMECTS no. 3462/2012, in the primary education, besides the classes of physical education stipulated in the framework plan, it is possible to create sports groups and sports assemblies (O.M.E.N. no. 5003/ 02.12.2014). The results of the comparative analysis of the dynamics of general motor skills development in the pupils of 6-8 years old highlight the following matters (table 1 and fig. 1 referring to girls; mean \pm SD, n=14): test 1 has an average of 6.5 \pm 3.23 correct reps in 30 sec in initial testing and an increase of the abdominal strength by 7.9 reps in final testing (14.4 \pm 3.81 reps), with significant differences between tests at p 0.001, where t=6.185; test 2 has an average of 10.7 \pm 3.17 correct reps in 30 sec and an increase of back strength by 6.4 reps in final testing (17.1 \pm 3.33 reps), with significant differences between tests at p 0.001, t=8.283; test 3 has an average of 2.7 \pm 1.89 attempts in initial testing and an improvement of the sense of balance by 1.56 attempts in final testing (1.14 \pm 0.36 attempts), with significant differences between tests at p 0.01, t=3.376; test 4 has an average of 31.4 \pm 7.21 cm in initial testing and an increase of the mobility of torso bending by 1.2 cm (32.6 \pm 7.67 cm), with significant differences between tests at p 0.001, t=5.667; test 5 has an average of 3.8 \pm 3.19 reps in initial testing and an increase of arms strength by 2.9 reps in final testing (6.7 \pm 4.08 reps), with significant differences between tests at p 0.001, t=6.684; test 6, turn to the right has an average of 200.7 \pm 58.4 degrees and an improvement by 27.1 degrees of the general coordination in final testing (227.8 \pm 53.2 degrees), with significant differences between tests at p 0.01, t=3.646; As for the turn to the left, the average is 186.4 \pm 59.6 degrees in initial testing and an improvement by 24.3 degrees of the general coordination in final testing (210.7 \pm 54.8 degrees), with significant differences between tests at p 0.01, t=3.631; test 7 has an average of 32.7 \pm 16.8 sec in initial testing and an improvement by 2.3 sec in final testing (30.4 \pm 16.6 sec), with significant differences between tests at p 0.01, t=5.213.

As for the boys (table 2 and fig. 2; mean \pm SD, n=14), the results of the comparative analysis of the dynamics of general motor skills development in the pupils aged 6-8 years show the following elements: test 1 has an average of 5.17 \pm 2.69 correct reps in 30 sec in initial testing and an increase of the abdominal strength by 9.63 reps in final testing (14.8 \pm 2.79 reps), with significant differences between tests at p0.001, where t=11.929; test 2 has an average of 7.83 \pm 3.56 correct reps in 30 sec and an increase of back strength by 6.67 reps in final testing (7.83 \pm 3.61 reps), with significant differences between tests at p 0.001, t=6.199; test 3 has an average of 1.83 \pm 1.03 attempts in initial testing and an improvement of the sense of balance by 0.83 attempts in final testing (1.00 \pm 0.00 attempts), with significant differences between tests at p 0.05, t=2.803; test 4 has an average of 34.08 \pm 6.05 cm in initial testing and an increase of the mobility of torso bending by 0.84 cm (34.92 \pm 6.08 cm), with significant differences between tests at p0.05, t=3.079; test 5 has an average of 4.92 \pm 2.78 reps in initial testing and an increase of arms strength by 3.58 reps in final testing (8.5 \pm 2.64 reps), with significant differences between tests at p 0.001, t=4.694; test 6, at the turn to the right there is an average of 196.7 \pm 63.6 degrees and an improvement of the general coordination by 16.6 degrees in final testing (213.3 \pm 58.7 degrees), with significant differences between tests at p 0.01, t=3.162 while for the turn to the left the average is 204.2 \pm 65.3 degrees in initial testing and an improvement by 11.6 degrees of the general coordination in final testing (215.8 \pm 64.2 degrees), with significant differences between tests at p 0.05, t=3.022; test 7 has an average of 27.5 \pm 9.95 sec in initial testing and an improvement by 3.75 sec in final testing (23.75 \pm 6.35 sec), with significant differences between tests at p 0.05, t=2.302.

Conclusions

The results of the research show the level of general motor skills development in the pupils aged 6-8 years following up the diversified use of gymnastics means within the lesson of physical education.

The comparative analysis of general motor development dynamics in the pupils of 6-8 years old highlights the increase of the abdominal and back strength higher in boys, better sense of balance and mobility in girls, higher arms strength in boys, better general coordination in girls, better endurance in boys and significant differences between tests at p 0.05, p 0.01 and p 0.001 better in girls which confirms the influence of gymnastics means on the development of general motor skills in the pupils aged 6-8 years. The diversified use of gymnastics content during the classes with pupils aged 6-8 years contributed to the increase of the efficiency of physical education lesson, materialized in the final results obtained in the test events.

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